

increasing a temperature of an environment associated with said cleaved surface to about 1,000° Celsius and greater; and

contacting said cleaved surface with a hydrogen bearing environment at least when said temperature of said environment is about 1000° Celsius and greater to reduce said first surface roughness value by at least about eighty percent to a second surface roughness value, said hydrogen bearing environment including at least an HCl gas and a hydrogen gas;

whereupon the cleaved surface having the second roughness value is substantially planarized.

32. (Amended) The method of claim 29 wherein said HCl gas and said hydrogen gas are a ratio (HCl:H<sub>2</sub>) of about 0.001 to 30.

33. (Amended) The method of claim 29, wherein said hydrogen gas and the HCl gas interact with said cleaved surface to reduce said surface roughness value.

34. (Amended) The method of claim 29 wherein said first surface roughness value of said cleaved surface is reduced in a thermal processing chamber.

36. (Amended) The method of claim 29 wherein said SOI substrate is fabricated from a donor silicon wafer.

37. (Amended) The method of claim 29 wherein said surface is raised to a temperature of at least about 1,000° Celsius.

39. (Amended) The method of claim 29 wherein the environment is maintained at a pressure of about 1 atmosphere.

REMARKS

Claims 29-39 are pending. Claims 29, 32-34, 36, 37, and 39 have been amended to correct typographical errors and more fully protect the claimed invention. No new matter has been added.